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ABSTRACT

Using a Virginia study as a model, this study assessed the effect on Washington state's economy of its 27 campus community college system. The study was based on a simple circular cash-flow model for the years 1969-1976 and measured economic impact in three areas: on the level of business volume done in-state, on employment, and on total state personal income. Results indicated: the college system yielded a 31% return on tax investments; system operations generated over $147 million in out-of-state funds between 1969 and 1976; $690 million in business revenues were generated for the reporting period, representing 147% of the amount allocated to the college system by the state legislature; and during a severe recession in 1975-76, system operations produced jobs for 15,837 people. In 1976, $161 million in personal income resulted from system operations, and in 1969-76, the average contribution to personal income was 171% of the state's general community college expenditure fund. Social benefits contributed to the state's overall development included 4[illegible],000 high school diplomas or GED certificates (1969-1976); 26,500 associate academic degrees (and 36,000 university transfers) during 1970-1976; and 61,000 persons trained in technical/occupational programs, 1970-1975, with correlations between occupational program graduates and employment figures in these fields of .90 or better. (IR)

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WASHINGTON STATE COMMUNITY COLLEGES: IMPACT ON THE ECONOMY OF THE STATE

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Washington State Community Colleges:
Impact on the Economy of the State

The issue of economic performance of community colleges is increasingly important. Legislative priorities for education are being challenged. The social value of higher education is being challened. Specific criticisms range from failure to prepare young people for a rewarding career (e.g. Carolyn Bird's The Case Against College) to Marxist charges that the structure of our nation's educational system serves to maintain social inequality.

Legislators and community leaders require efficiency and accountability. Higher education, according to educator Howard Bowen, "has a clear responsibility to operate efficiently and to report its costs and results to the American people in ways that transcend the tired rhetoric of commencement speeches and slick brochures."[1]

Demonstrating results of higher education is a thorny problem. It is difficult to define a universally acceptable set of desired outcomes or goals to be examined; it is more difficult to generate an acceptable dollar value for many of these social values. Results and acceptance of existing studies vary considerably.

One tactic in the campaign to assess the effects of higher education is to set aside an examination of the social value of education for a more direct approach. This approach is to look strictly at an operating system's impact on the economy. If the system carries its own weight financially--if the return to the community's economy is at least as great as the investment the taxpayers make--then a positive value is established even before the social and intangible benefits of education are added.

This Study

Economic impact. The American Council on Education sponsored the development of a model for assessing the impact of a college on its local community.[2] A variant of the model, developed by Sheehan and Serediak[3] has been applied on a statewide level in Utah and Virginia. The Virginia study was specifically concerned with the statewide impact of its community college system.[4] This report, following the design of the Virginia study, is an assessment of the effect of Washington's community college system on the economy of the state.

Washington community colleges. The Washington community college system divides the state into 22 districts, with a total of 27 community college campuses throughout the state. Charged by statute with offering "an open door to every citizen, regardless of his academic background or experience, at a cost normally within his economic means," the colleges provide academic transfer courses, occupational education, and adult education, as well as educational, cultural, and recreational community services.

The Carnegie Commission on Higher Education, in 1971, designated Washington one of seven pacesetter states in the nation for community college education. The Washington system received top rankings for eight-year enrollment growth rate, percent of the state's 18-24 year old population enrolled in community colleges, and percent of students enrolled in occupational programs.

The model. The study is based on a simple circular cash flow model (see diagram). Both internal (in-state) and external (out-of-state) sources of funds flow into the economy through the community college system. Internal sources are primarily state appropriations, and external sources are mostly federal grants and gifts from private foundations, etc. The system has its impact by circulating these funds in the form of salaries, purchases, and capital expenditures.

As in the Virginia study, the economic impact of Washington's community colleges was measured in three areas: on the level of business volume done in the state, on employment, and on total state personal income. Each was measured both in terms of total expenditures (spending of monies from both internal and external sources) and of external expenditures alone (funded solely by income from out-of-state sources).

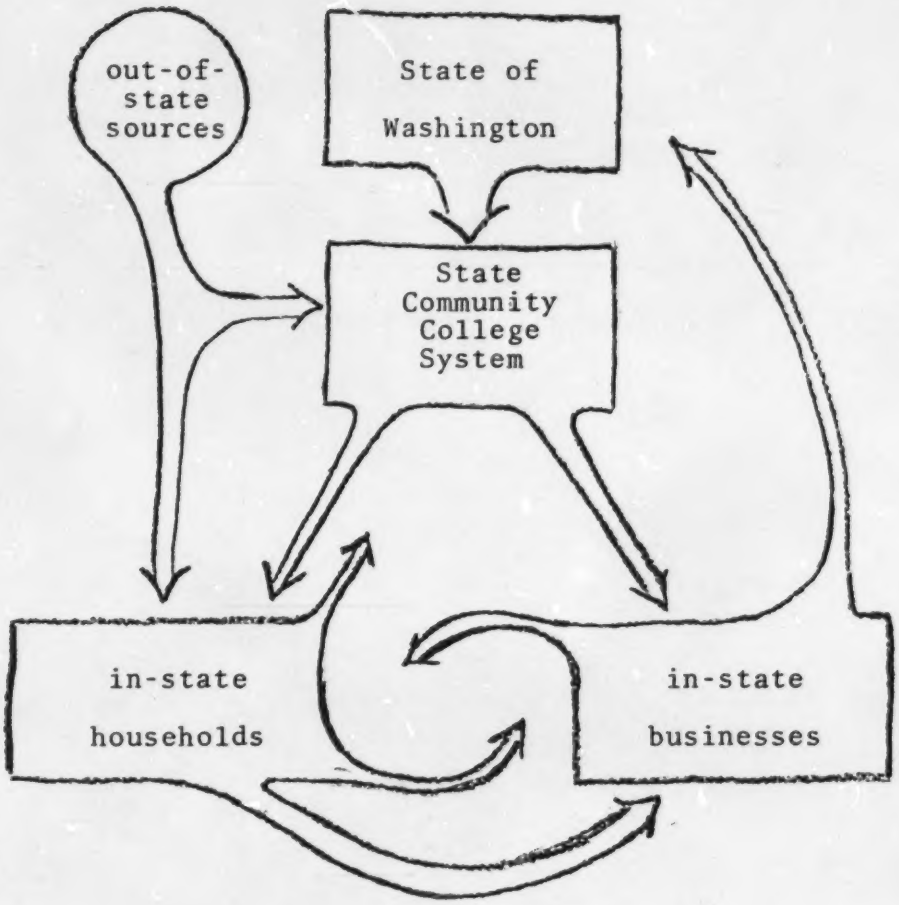
Results

As in Virginia, community colleges in Washington do pay their own way. This study found that besides the educational and community service benefits they provide, the colleges return substantially more to the state economy than they receive in appropriations (see graph).

Business volume. The business volume generated by the community college system is the dollar amount that enters the state economy through the system. This figure includes the system's in-state spending, out-of-state educational benefits to community college students and an income-induced multiplier effect. That is, some portion of the income to employees and students is returned again to the commercial sector through spending. The equations used to determine economic and employment impact are shown in the appendix.

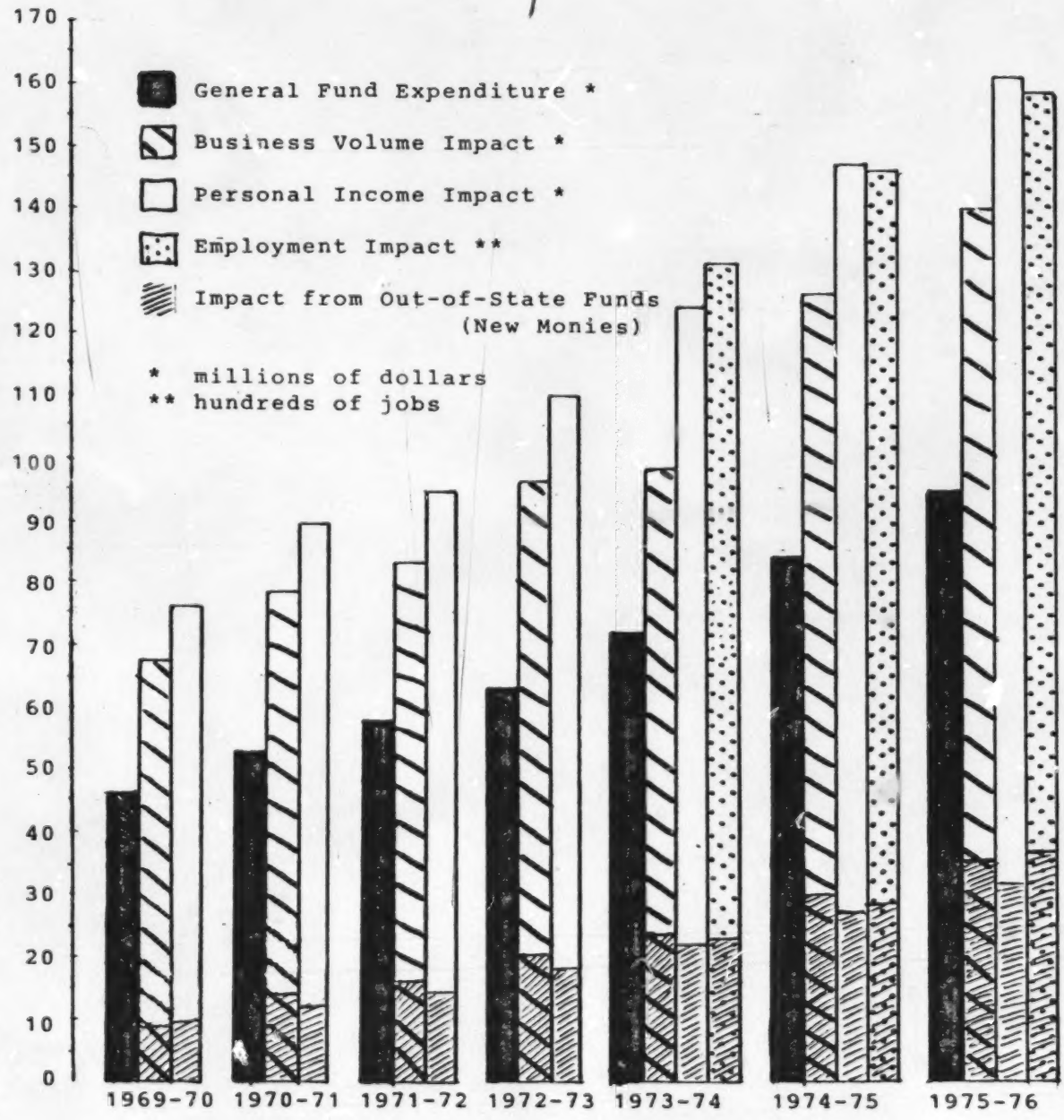
The volume of business generated in the state (directly and indirectly) by the community colleges amounts to more than the state spent on the colleges. In 1976, for example, the impact of the colleges on business volume in the state was $140 million dollars. This is 148% of the amount expended from the state's General Fund for community colleges that year ($94.5 million), and is .2% of the entire gross business income in the state ($66 billion). Over the period 1969-76, the business volume impact averages 147% of the General Fund expenditure--a return to the economy of $1.47 for every dollar spent.

Recognizing that a good portion of this return might have been realized with alternative investments of state funds (other



The circular cash flow model

Impact of Community Colleges on the Economy of the State of Washington



than to community colleges), we can calculate the business volume attributable strictly to the flow of money into the state's economy from external, out-of-state sources ("new monies") through the community college system. Business volume of $37 million was generated by new monies channeled through the colleges in 1975-76, up from $9 million in 1969-70. Over this seven-year period, the impact averages out to a clear gain of 31¢ for every dollar spent from the General Fund.

Employment impact. The number of jobs created by the community college system, directly and indirectly, increased from 13 thousand in 1973-74 (the earliest year for which full-time equivalent employment figures are available) to nearly 16 thousand in 1975-76. The number of jobs the colleges contribute to the economy is figured as the number (full-time equivalent) of persons employed by the system directly, plus a factor based on the private sector employment requirements due to increased business volume.

The total employment impact for each of these years was more than twice the number of FTE employees of the colleges. By 1976 the number of jobs contributed was equal to 1% of the entire resident labor force of the state (1.6 million), and the jobs were contributed at a cost from the General Fund of less than $6,000 per job.

Again, since alternative investments of state funds might also be expected to create a certain number of jobs, we can get a conservative estimate of the number of jobs attributable to the community college system per se by calculating employment impact on the basis of new monies alone. This comes to 2,300 to 3,400 full-time jobs per year, over and above those due to expenditure of state funds.

Personal income. In 1976 Washington residents received a total of $24.6 billion in personal income. About $161.4 million of this was generated by the community colleges, directly and indirectly. From 1969 to 1976 this contribution to the state's total personal income averages 171% of each year's General Fund expenditures. Even calculated on the basis of new monies alone, the amount flowing into households through the colleges from out-of-state sources is equal to 28% of the amount invested in community colleges from the state General Fund.

Some Nonmonetary Effects of the System

Access to higher education and community service. One of the primary mandates of the community college system is to make higher education accessible to state residents. Analysis of the state's population distribution revealed that the system has succeeded almost perfectly in providing geographically accessible campuses. Ninety-eight percent of Washington residents live within a 40-mile radius (an hour's drive at most) from at least one community college campus. In contrast, less than half of the population (46%) lives within the same commuting distance

from a state or private 4-year institution. Other ways in which the community colleges are more accessible (tuition, admissions) accentuate this lead still further.

Access to education provided by community colleges saves academic students at least $5.5 million annually in tuition and living costs. This figure does not include increased cost to the state per FTE student at a 4-year institution, nor does it reflect the fact that fully 48% of community college students are in technical and vocational programs and would have no alternative available at any comparable cost.

Educational attainment: 1. High school completion. The community colleges provide the major means outside of high schools for achieving high school credentials. Although the average educational level of the population in Washington compares favorably with national averages, in 1970 over a third of Washington's adult population (age 25 and over) had not completed high school.

Between 1970 and 1976, over 41 thousand diplomas or GED certificates were earned through community colleges. The number qualifying in 1976 added another 18% to the number graduating from regular high school programs that year.

2. College degrees. Community colleges have awarded 3,000-5,000 Associate of Arts degrees per year in academic (non-occupational) areas since 1970 (5,111 in 1975-76). These Arts & Sciences and General Studies A.A. degrees are more than half the A.A. degrees given each year at the colleges.

The total number of students transferring from community colleges to 4-year colleges and universities is not available, but the number transferring to public 4-year institutions alone is approximately equal to the number of academic Associate degrees given each year. (Many do not transfer, but many transfer before completing the A.A.) Community college transfers to public 4-year institutions add another 8-10% to the number of Washington high school graduates entering these schools each year.

Level of marketable skills. Associate degrees awarded in occupational/technical fields have numbered about 3-5 thousand per year from 1970 to 1976 (4,859 in 1976). Many more who receive training at the community colleges leave school before completing the A.A. degree. The number of students completing these programs or leaving with marketable skills doubled in the five years from 1970 to 1975, increasing from 7,000 to over 14,000.

Vocational training in Washington community colleges has always emphasized realistic and practical courses that will lead to actual jobs. That this policy works in practice is borne out not only by the observation that many students take employment before completing the degree, but also by actual

comparison with employment figures in these fields. Correlations of .90 and better were found between the number of students leaving each category of occupational program with degrees or marketable skills in 1970 and 1974, and the number of persons employed in those fields in the same years. This confirms that training is being given in fields where the jobs are.

The value of higher education. Higher education is assumed to provide certain benefits, both to individuals (intellectual, emotional and moral development and practical competence--especially increased earning power) and to society (advancement of knowledge, the discovery and development of talent, solutions to social problems). Whether education does in fact provide the benefits that we have always supposed it did, and whether the benefits are worth the cost are questions concerning social critics, legislators, and educators alike.

A considerable body of research is being amassed in efforts to identify weaknesses and document the benefits. The researchers have encountered enormous difficulty in trying to assign dollar worth to social values and to social costs, as well as in trying to produce unequivocal evidence.

This study shows that, whatever the value of the intangible benefits of education may turn out to be, in the case of the Washington community college system, the cost to the state is more than returned in the colleges' contribution to the economic well-being of the state. The state's appropriations for community colleges circulate throughout the economy and attract new sources of funds from out of state. The three measures considered here--business volume, personal income, and employment--all show greater return from the colleges than was invested by the state. Even if the disputed value of education were nil, the colleges are still paying their own way.

This does not mean that the question cannot or should not be pursued. On the contrary, in the most comprehensive analysis to date on the cost and value of higher education, Bowen[5] assembled and interpreted a great amount of evidence that demonstrates that the actual and potential consequences of American higher education can be studied. This evidence, taken together, shows that "first, the monetary returns from higher education alone are probably sufficient to offset all the costs. Second, the nonmonetary returns are several times as valuable as the monetary returns. And third, the total returns from higher education in all its aspects exceed the cost by several times. In short, the cumulative evidence leaves no doubt that American higher education is well worth what it costs."

What it does mean is that the tangible and intangible benefits of education to those who partake in it, and the benefits to society contributed by colleges and their graduates, are in a certain sense cost-free, since the investment has already been returned to the economy. What it means is that education is good business.

Summary

While taxpayers are concerned about legislative and bureaucratic waste, Washington's State Community College system is one taxpayer-supported program that yields a 31 percent return on the tax "investment".

This return rate is not inflated by assignment of dollar values to social benefits. Social benefits--and there are many in this program--would be added on top of the substantial documented economic returns.

The impact of the community college system in the State of Washington on the economy of the state has been impressive:

* The community college system's operation resulted in over $147 million in out-of-state monies flowing into Washington State between 1969 and 1976.

* The impact of the system on the business community is significant; $690 million in business revenues were generated in the same period as a result of community college operations. This is 147% of the amount allocated by the state legislature during that time. This business volume in turn produces tax revenues required to support other state and local programs.

* In 1975-76--during a severe recession--the community college system's operation produced jobs for 15,837 persons. This total is more than twice the number of jobs funded directly by the community college system.

* In the same year new monies generated by the community college system's operation (not Washington State tax dollars) resulted in more than 3,400 of these jobs.

* The average cost per job, calculated by dividing the number of jobs created by the community college system by the State general fund expenditure, is less than $6,000 per job. More than half are private sector jobs.

* During 1976, $164 million in personal income was generated by Washington's community college system. During the 1969-1976 period the average contribution to personal income was 171% of the state's general fund expenditure for community colleges.

* In addition to the direct economic benefits to the state's economic health, the community college system contributes a range of social benefits to the state's overall development.

* The community colleges provide physical access to higher education for 98% of the state population. Only 2% of the state population lives more than a one-hour commute from a community college campus. This compares to 54% of the population that lives more than a one-hour commute from the nearest state or private four-year institution. The virtually universal access to community college education for academic instruction can be conservatively valued at $5.5 million per year in direct savings for the population.

* The community colleges make a major contribution to adult education. From 1969 through 1976 more than 41 thousand Washington state residents received high school diplomas or GED certificates through the community college system. In 1976 the community college system added 18% to the number receiving diplomas from regular high school programs.

* More than 26,500 Associate academic degrees were awarded during the 1970-76 period. Nearly 36,000 students transferred to 4-year public schools in the same years.

* Sixty-one thousand persons were trained in technical or occupational programs in 1970-75. These people were trained for careers that are in demand. Correlations between occupational program graduates and employment figures in those fields are .90 and better, showing that technical and occupational programs offered by community colleges have closely matched state employment patterns.

NOTES

1. Bowen, H. Investment in Learning, San Francisco: Jossey-Bass, 1977. p. 22.

2. Caffrey, J., & Isaacs, H. Estimating the Impact of a College or University on the Local Economy, Washington, D.C.: American Council on Education, 1971.

3. Wellsfry, N. The Economic Impact of the Virginia Community College System, 1966 to 1974. Virginia Polytechnic Institute, Ed. D. dissertation, 1976.

4. Bowen, Investment in Learning.

5. Bowen, p. 448.

APPENDIX:

ECONOMIC IMPACT EQUATIONS

Business Volume Impact--Total Monies (BV)

$$BV = B_s + B_s m_i$$

$$B_s = B_s(O) + B_s(C) + S_{fa}$$

$$B_s(O) = W = hT$$

$$B_s(C) = hC$$

$$S_{fa} = SS + VA$$

Business Volume Impact--New Monies (BV_a)

$$BV_a = B_{sa} + B_{sa} m_i$$

$$B_{sa} = B_s(O)_a + B_s(C)_a + S_{fa}$$

$$B_s(O)_a = nB_s(O)$$

$$B_s(C)_a = nB_s(C)$$

Employment Impact--Total Monies (J)

$$J = E + pB_s$$

Employment Impact--New Monies (J_a)

$$J_a = nE + pB_{sa}$$

Income Impact--Total Monies (I)

$$I = \alpha W + \Omega(B_s - W)$$

Income Impact--New Monies (I_a)

$$I_a = \alpha W_a + \Omega(B_{sa} - W_a)$$

$$W_a = nW$$

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Definitions of terms in equations

α	initial income multiplier
a	subscript denotes added or new monies
B_s	Business volume generated from total monies
B_{sa}	Business volume generated from new monies
$B_s(C)$	Business volume generated, capital expenditures from total monies
$B_s(C)_a$	Business volume generated, capital expenditures from new monies
$B_s(O)$	Business volume generated, operating (non-capital) expenditures from total monies
$B_s(O)_a$	Business volume generated, operating (non-capital) expenditures from new monies
C	capital expenditures
E	full time equivalent (FTE) professional and classified employees
h	proportion of total expenditures that are spent in state
I	income impact from total monies
I_a	income impact from new monies
J	Employment impact from total monies (Jobs)
J_a	Employment impact from new monies (Jobs)
m_i	income induced requirement per dollar by final demand (home recycled back to commercial)
n	out-of-state funding portion (new monies ÷ total monies)
p	employment requirements coefficient
s	subscript denotes direct effects of spending
S_{fa}	student financial aid monies (from out of state)
SS	student survivors benefits from Social Security Administration --amount paid to Washington community college students (est.)
T	non-salary expenditures
VA	educational benefits from Veterans Administration paid to Washington community college students (est.)
W	net wages
Ω	internal multiplier